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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/957,054	09/20/2001	Steven E. Fairchild	P00-3286	5619

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EXAMINER

COLON, ROCIO

ART UNIT PAPER NUMBER

2651

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/957,054

Applicant(s)

FAIRCHILD, STEVEN E.

Examiner

Rocio Colon

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Lasker et al. (USPN 5,586,921).

Regarding claim 1, Lasker et al. disclose a disk drive system having an array controller that receives a write command from a host (column 4, lines 5-7), comprising: a write stack drive to receive said write command and to store write operations within said write command with write stack operations on a non-volatile cache memory (column 4, lines 11-13); and a normal drive to receive said write command and to execute said write operations within said write command (column 4, lines 19-21).

Regarding claim 5, Lasker et al. disclose the write stack drive sends a complete command when said write stack operations are completed (column 10, lines 16-26, when the sequence counter is incremented by one, the operation on the write-cache (write stack operation) is completed).

Regarding claim 6, Lasker et al. disclose the said write stack drive comprises metadata to reflect data within said write stack drive (column 9, line 67 and column 10, lines 1-2, the head pointer and the tail pointer reflect the spaces where the data is stored).

Regarding claims 7 and 13, Lasker et al. disclose a disk drive that executes write commands on a storage media coupled to a normal drive, comprising:

an array controller coupled to a disk drive (Fig. 1, elements 20 (controller) and 18 (disk drives))

a write stack drive comprising a non-volatile cache memory (column 4, lines 11-13) having a plurality of tracks (column 5, lines 15-18, the write-cache memory is the non-volatile memory, and the

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blocks are treated as the tracks). , wherein said plurality of tracks store data from write stack operations for said write commands (column 7, lines 16-17);

a metadata file to identify the data stored within said write stack drive (column 9, line 67 and column 10, lines 1-2, the head pointer and the tail pointer reflect the spaces where the data is stored) and

a normal drive within the disk drive to execute writes operations for the write command (column 4, lines 19-21).

Regarding claims 2 and 8, Lasker et al. disclose the non-volatile cache memory acts as a stack memory (column 6, lines 63-64).

Regarding claims 3 and 9, Lasker et al. disclose the write command stores data in a storage media or normal drive (column 4, line 20).

Regarding claims 10 and 16, Lasker et al. disclose a marker sector for each write stack operation stored within said write stack drive (column 10, lines 16-26, the sequence counter increments by one each time a write operation is received from the host).

Regarding claim 11, Lasker et al. further disclose the marker sector includes a valid data flag (column 10, lines 26-31).

Regarding claim 12, Lasker et al. disclose the said write commands are received from an array controller coupled to the disk drive (Fig. 1, elements 20 (controller) and 18 (disk drives)).

Regarding claims 4 and 14, Lasker et al. disclose the said non-volatile cache memory comprises a plurality of tracks (column 5, lines 15-18, the write-cache memory is the non-volatile memory, and the blocks are treated as the tracks).

Regarding claim 15, Lasker et al. disclose a host to initiate said write command to said array controller (Fig. 1, element 11).

Method claims 17-20, 22, 24, 25 and 30-31 are drawn to the method of using the corresponding apparatus claimed in claims 1, 5, 12, 4, and 13. Therefore method claims 17-20, 22, 24, 25 and 30-31

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correspond to apparatus claims 1, 5, 12 and 4 and 13 are rejected for the same reasons of anticipation as used above.

Regarding claims 21 and 27 Lasker et al. disclose the method further comprises updating a metadata file when said write stack operations are performed (column 12, lines 4-8).

Regarding claims 23 and 26, Lasker et al., disclose method further comprises positioning a pointer to another track when said writing is completed (column 12, lines 7-8).

Regarding claim 29, Lasker et al. further disclose the method comprises committing said data to an LRU cache (column 10, lines 57-58).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rocio Colon whose telephone number is (703) 305-3947. The examiner can normally be reached on Mon-Thu 8:00a.m.-6:30p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.


rcv

January 25, 2004


DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600